

# NEWSLINE

Published weekly for employees of Lawrence Livermore National Laboratory

Friday, September 17, 2004

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## Vehicle station passes inspection



JACQUELINE McBRIDE/NEWSLINE

From left: Dave Leary, director of the Lab's Safeguards & Security, Pat Smith, Sandia Site Operations director, canine officer Mike Farnham, Protective Force Officer John Sims, Rep. Ellen Tauscher, Director Michael Anastasio and canine officer John Baoillo.

Congresswoman Ellen Tauscher returned to the Laboratory last Friday to officially open the joint Delivery Vehicle Inspection Station in the East avenue corridor.

During the ceremony Tauscher used the new station as an example of the Lab's vigilance regarding security and safety.

The Laboratory "is always on duty, always at the ready," she said. "This event highlights once again that we are constantly vigilant, never confused about our purpose

See **TAUSCHER**, page 5

## Joint Genome Institute adds human chromosome 5 to draft genome sequence

By David Gilbert  
NEWSLINE STAFF WRITER

"It ain't over 'til it's over," said Yogi Berra, then manager of the New York Mets during the 1973 baseball pennant race. The same can be said for the Human Genome Project (HGP). Launched by the Department of Energy nearly two decades ago, and four years after the announcement of the completion of a draft human genome sequence,



See **CHROMOSOME**, page 7

## Lab collaborators receive presidential career awards

Two Laboratory research collaborators were among a group of young scientists honored at a White House ceremony earlier this month with the 2003 Presidential Early Career Award for Scientists and Engineers (PECASE). They also received the Department of Energy Defense Programs Early Career Scientist and Engineer Award.

Brian Wirth, a former Laboratory employ-

See **PECASE**, page 3

## Los Alamos Director Nanos announces personnel actions

Los Alamos National Laboratory Director Peter Nanos announced Wednesday personnel actions resulting from the investigation of security and safety incidents earlier this year.

The security incident involved the mishandling of classified removable media (CREM) and a safety problem with a laser experiment. Nanos directed the suspension of LANL operations July 16 "because a pattern of near misses in safety and security had created in me and others a fundamental lack of confidence in our ability to conduct work without a major mishap."

"During this suspension I have asked every staff member to share in a commitment to safeguard the health, welfare and safety of our workforce," Nanos said in a memorandum to Los Alamos employees.

"I believe the overwhelming majority of Laboratory staff members are hard-working professionals dedicated to our national security mission,"

See **CREM**, page 4

## McQueary officially opens biodefense center

The Laboratory's Biodefense Knowledge Center will serve as a "national hub of biodefense expertise," said Charles McQueary, undersecretary for the Department of Homeland Security's Science and Technology Directorate, at a dedication ceremony Friday.

The new biodefense center will provide a 24-hour-per-day, seven-days-a-week capability for assistance about bioterrorism.

The Biodefense Knowledge Center, or BKC, is a national center to assist Department of Homeland Security (DHS) officials and the country in the fight against bioterrorism.

The BKC will draw upon about 75 researchers based at four national laboratories — Oak Ridge, Pacific Northwest, Sandia and Lawrence Livermore.

Collaborators also will include three DHS University Centers of Excel-

See **BKC**, page 5



JACQUELINE McBRIDE/NEWSLINE

The official unveiling of the Biodefense Knowledge Center: (from left) Wayne Shotts, acting director of the Lab's Homeland Security Organization; Bill Colston, BKC director; Maureen McCarthy, director of the Department of Homeland Security's Office of Research and Development; Charles McQueary, undersecretary of DHS, Mim John, Sandia vice president, and Lab Director Michael Anastasio.



Accreditation for Health Services

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Unearthing new source of methane

— Page 7



Montana missile mishap exercise

— Page 8



## LAB COMMUNITY NEWS

### Weekly Calendar

Technical Meeting Calendar, page 4

Friday  
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Tickets for the **LLESA summer picnic** that will be held Saturday at Paramount's Great America must be purchased by today in the Time Zone.

Park hours are 10 a.m.-7 p.m. Tickets are \$27 for all ages and include park admission and an all-you-can-eat hot dog, barbecue beans, potato salad and watermelon lunch, between noon and 1:30 p.m. at the County Fair Picnic Grove. Beverage and ice cream service will be available from 11:30 a.m.-2:30 p.m. Parking tickets also are for sale for \$5 at the Time Zone. The Time Zone, Trailer 4128 is open Monday through Friday, 7:30 a.m.-3 p.m.

Saturday  
18

There will be a **scheduled power outage** from 7 a.m. today until 3 p.m. Sunday, Bldgs. 243 and OS243W will be affected. Air conditioning, heating and elevators also will be affected. For more information, contact Mark Cardoza, 3-0490.

Monday  
20

The Lab's **blood drive** will be held today through Wednesday in Trailer 4675 (the old central cafeteria). Donors are encouraged to schedule an appointment in advance at <http://www.beadonor.com/> and click on the word Registration. The drive sponsor code is: LLNL. Individuals without Internet access can schedule an appointment by calling the LLESA Office, 2-9402. Donor eligibility questions should be directed to the American Red Cross at 1-800-448-3543.

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Tuesday  
21

A **Fidelity retirement counselor** will be available today, to assist with: assessing the current state of retirement accounts,

learning how to diversify, planning asset allocation and identifying income strategies. Fidelity Investments Mutual Funds are available to UC's workplace retirement plan participants in addition to the UC-managed investments pools. If you would like to set up an appointment with a Fidelity representative, call 800-642-7131. When calling, be sure to specify that you are an LLNL employee.

UP  
&  
COMING

The Juvenile Diabetes Research Foundation's Greater Bay Area Chapter will **"Walk to Cure Diabetes"** on Sunday, Oct. 3.

Be a part of the University of California walking team on this day — walk with volunteers from LLNL, LBNL, the Joint Genome Institute, UC Office of the President and UC Berkeley. The three-mile walk is at Heather Farm Park, Walnut Creek, with check-in time at 8 a.m. and start time at 9 a.m. This is an international, organized event with 200 sites worldwide and more than 500,000 participants. For more information, contact Maureen Morley, 2-1770.

### Engineering fun



JACQUELINE MCBRIDE/NEWSLINE

Saxophonist Ray Iaea performs jazz during the Engineering Directorate's annual picnic held on Wednesday in the lawn area of Bldg. 482. Monya Lane of Engineering drew names for door prizes. Picnic fare included hot dogs and hamburgers.

### IN MEMORIAM

#### Monroe Olin LeVois Moen

Retired physicist Monroe Olin LeVois Moen died Sunday, Sept. 5. He was 69.

Born and raised in South Dakota, Moen moved to Livermore in 1958 from Middletown, Conn. He spent 34 years as a physicist at the Laboratory from 1961-95.

A 46-year resident of Livermore, Moen

enjoyed collecting coins, breeding horses, playing guitar and spending time with his grandchildren.

Moen is survived by his daughter, Kirsten Horner and her husband Aaron Horner of Livermore; three grandchildren, and a brother, Steven Moen of Oregon.

Funeral services have been held.

#### George Cranston Tyler

George Cranston Tyler died Thursday, Sept. 9, at his home in Livermore. He was 65.

Born in 1939, Tyler got his bachelor's degree in electrical engineering from UC Berkeley and his master's degree from San Jose State.

Tyler started at the Laboratory in 1965 and worked as an electrical engineer. He was involved in the design of the CAIN booth system, EE special projects and the Beam Research program. He left the Lab in 1988 to work for Raychem and KLA-Tencor.

An avid golfer, George also enjoyed gardening, model railroading, hiking, live musical plays and was quite active at Cornerstone Fellowship in Livermore.

He is survived by his wife of 16 years, Jan

Tyler; two sons Bill and Jim Tyler and three daughters Laura Burgdoerfer, Sarah Hoff and Denise Henderson.

His Celebration of Life service will be held Saturday, Sept. 18, at Cornerstone Fellowship, 348 North Canyons Parkway in Livermore.

In lieu of flowers, please send donations to Cornerstone Fellowship Missions Ministry.

### Newsline

Newsline is published weekly by the Internal Communications Department, Public Affairs Office, Lawrence Livermore National Laboratory (LLNL), for Laboratory employees and retirees.

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### Hackel to retire after 27 years

Lloyd A. Hackel is retiring after 27 years of service. A retirement luncheon in his honor will be held at noon Friday, Sept. 24, in the Bldg. 391 lobby. The cost is \$20 per person and includes lunch, drink, dessert and gift. RSVP with payment by Sept. 21 to Sophia Simos, 2-7715, or Frances Mendieta, 3-2686.

## AROUND THE LAB



## Health Services achieves national accreditation

The Health Services Department has achieved re-accreditation by the Accreditation Association for Ambulatory Health Care (AAAHC). According to the final report from AAAHC, "Health Services activities are well integrated with activities involving safety, industrial hygiene and emergency preparedness/response. The quality of service is excellent. Services are tailored to the occupational health needs of the organization."

HSD received its first three-year AAAHC accreditation in 2001, demonstrating its commitment to provide patients with high-quality health care services.

Accreditation is the highest form of public recognition a health care organi-

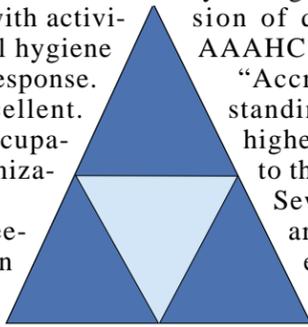
zation can receive for the quality of care it provides. Status as an accredited organization means that Health Services passed a series of rigorous and nationally recognized standards for the provision of quality health care, set by the AAAHC.

"Accreditation underscores our longstanding commitment to providing the highest possible levels of quality care to the community we serve," said Jim Seward, Lab medical director. "We are pleased and proud to have our efforts recognized with this accreditation."

The AAAHC is a national, non-profit accrediting body whose purpose is to promote the provision of quality health care services in the ambulatory care environment through accredi-

tation. AAAHC has reviewed a number of Department of Energy contractor occupational medicine programs. Sandia-Albuquerque, Sandia-Livermore and Los Alamos National Laboratory have also received three-year accreditations.

Organizations seeking accreditation by AAAHC undergo an extensive on-site, peer-based survey of its facilities and services. Not all ambulatory health care organizations seek accreditation; not all undergoing the survey are granted accreditation. Among the types of ambulatory health care organizations that can seek AAAHC accreditation are college and university health services, community health centers, occupational health centers, ambulatory and office based surgery centers, single and multi-specialty group practices and managed care organizations.



### PECASE

*Continued from page 1*

ee currently on the faculty at UC Berkeley, received the award for his work in computational dynamics studies of dislocations and defects in metals.

Catherine Snelson, from the University of Nevada, Las Vegas, was honored for her contributions to the characterization of the geologic structure of the Las Vegas basin. Both were nominated by the Laboratory for their collaborative research in support of DOE Defense Programs.

Prior to joining the faculty at UC Berkeley, Wirth spent three years at the Laboratory as an employee of the Chemistry & Materials Science Directorate. While at the Lab, Wirth carried out computer simulations using molecular dynamics models of time-dependent damage accumulation in a wide variety of metals, including steel, copper, iron, vanadium and plutonium.

He collaborated with a wide variety of researchers at LLNL and elsewhere, producing more than 20 refereed journal publications, with another six papers to appear later this year.

Since joining UC Berkeley, Wirth has continued to interact closely with the Lab's CMS research staff. "Brian's faculty research is clearly of major interest to both our Laboratory and the National Nuclear



NASA  
Two former Lab employees were honored with the 2003 Presidential Early Career Award for Scientists and Engineers (PECASE) and the DOE Defense Programs Early Career Scientist and Engineer awards. Brian Wirth, center above, and Catherine Snelson, center right, are shown with OSTP director John Marburger, left, and Deputy Secretary of Energy Kyle McStarrow, right.



Security Administration Defense Program efforts," LLNL Director Michael Anastasio said. "Brian has made outstanding contributions to his research field and has shown exceptional leadership potential. The Laboratory congratulates him on this honor."

Snelson also is a close collaborator with the Laboratory on research related to assessing underground test readiness at the Nevada Test Site. This collaboration benefits the Laboratory's activities in quantifying the level of ground motion in Las Vegas for potential future tests at NTS.

"Catherine is an expert in experimental geophysics and has developed an excellent

experimental program to characterize the geologic structure of the Las Vegas basin," Anastasio said. "Her collaborative research will directly impact the National Nuclear Security Administration's ability to maintain long-term readiness at NTS.

"Catherine has demonstrated extraordinary commitment and technical achievement in support of defense program missions, and the Laboratory congratulates her on her award.

"Both Brian and Catherine are great examples of the nation's talented young scientists," Anastasio said.

"The work of these young scientists and engineers is an excellent example of the kind of innovative and forward-looking research that our nation needs to meet the challenges of the twenty-first century," Energy Secretary Spencer Abraham said. "Their work will help to contribute to our energy security and independence far into the future."

Steven Ashby, deputy associate director for the Computing Applications and Research Department in Computation attended the DOE ceremony on Sept. 9 and was impressed with the accomplishments of the LLNL nominees. "It was an honor to attend the event in support of our nominees," Ashby said. "The research efforts pursued by Brian and Catherine represent first-rate scientific achievement in support of our national security mission. Their collaborations with LLNL scientists combined experiment with simulation, which has been a hallmark of this Laboratory since its founding."



## NEWS YOU CAN USE



TAHERA KAPASI, SCI FY CAMP DIRECTOR

### SCI FY, a science camp for kids

Lab employee Sabre Coleman, Environmental Protection Department, was among the volunteer instructors supporting SCI FY, a science camp for inner-city Oakland middle school students piloted this summer by Alameda County Supervisor Keith Carson.

### CREM

*Continued from page 1*

he said. "The personnel actions announced today should not reflect poorly on this vast majority of conscientious laboratory staff members who are committed to our national security mission and to conducting their work in a safe, secure and compliant manner, but rather, these actions should be viewed as confirmation that this institution is worthy of the public trust and will not tolerate a disregard for the rules and standards to which the University of California and the laboratory has committed themselves."

Nanos said that while investigations by outside agencies are continuing, the Laboratory has enough factual information to administer appropriate personnel actions with respect to 21 of the 23 workers who had been placed on investigatory leave. Of the 23 individuals placed on investigatory leave:

- Four were terminated.

- One is pending resignation in lieu of termination.

- Seven received either written reprimands, demotions, salary reductions or suspensions without pay or some combination of these actions.

- One remains on investigatory leave pending outcome of investigations.

- Ten will return to work without any findings of wrongdoing.

"The Laboratory sought to ensure that all disciplinary actions were reasonable, fair, equitable and based solely on the results of the investigations and review process. Personnel actions were taken at all levels of responsibility," Nanos said.

"These personnel actions provide necessary closure to the most recent issues related to safety and security. The suspension and subsequent resumption of Laboratory activities, though not entirely complete, has provided a basis for renewed trust and confidence in Los Alamos National Laboratory."

"We are making significant progress in resumption of Laboratory activities. Through the

dedicated efforts of the Laboratory's workforce, we are rebuilding a laboratory committed to operations in accordance with established safety, security, and compliance policies," Nanos said. "The bottom line is the suspension is not about achieving perfection at Los Alamos National Laboratory. Everyone can appreciate that honest mistakes will undoubtedly occur in a highly complex technical environment even when laboratory workers act responsibly, in good faith and in adherence to established policies and procedures."

In a statement released Wednesday afternoon, UC Vice-President for Laboratory Management Robert Foley said: "The University of California fully supports the personnel actions Los Alamos National Laboratory Director Peter Nanos is taking as a result of the laboratory's investigation into the CREM and laser safety incidents. These disciplinary actions are important first steps in moving to resumption of full lab operations as well as ensuring accountability is in place and enforced at the lab."

## Technical Meeting Calendar

Friday  
17

### INSTITUTE FOR GEOPHYSICS & PLANETARY PHYSICS

"QSOs and black hole growth," by Qingjuan Yu, UC

Berkeley. Noon, Bldg. 319, room 205. All Attendees need to be badged. Contact: Wil van Breugel, 2-7195, or Sharon Taberna, 3-6290.

### LS&T POSTDOCTORAL INTERVIEWEE SEMINAR

"Advanced Laser Resonators and Applications to Laser Micromachining," by Seong H. Cho, MIT. 9:30 - 10:30 a.m., Bldg. 481, room 1000 auditorium. Contact: Dolores Lambert, lambert2@llnl.gov, or Ray Beach, beach2@llnl.gov.

Monday  
20

### BIOSECURITY & NANOSCIENCES LABORATORY

"Conductance Imaging AFM and the Electronic Properties of

Carbon Nanotubes," by postdoc interviewee Michael Stadermann, University of North Carolina at Chapel Hill. 2 p.m., Bldg. 155 auditorium. Foreign nationals may attend if an appropriate security plan is on file, which includes Bldg. 155. Contact: Alex Noy, 4-6203, or Josie Morgado, 2-7181.

### ICF/HEDES SEMINAR

"EXAFS Measurement of Laser-Shock Compression on OMEGA and bcc-to-hcp Phase Transformation in Iron," by Barukh Yaakobi, University of Rochester, LLE. 10:30 a.m., Bldg. 219, conference room 238. Contact: Bruce Remington, 3-2712, or Anika Rodda, 2-6377.

Thursday  
23

### BIOLOGY & BIOTECHNOLOGY RESEARCH PROGRAM

"Stops Along the DNA Pi-Way: Electron Transfer in DNA, Breast Cancer and Biodefense," by Paul

Henderson, BBRP. 10:30 a.m., Bldg. 361 auditorium, Darwin Room. For the complete schedule of seminar speakers, including titles, abstracts, and

supporting information, visit [http://doves.llnl.gov/bbrp\\_seminars/](http://doves.llnl.gov/bbrp_seminars/). Refreshments will be served 10 minutes prior to the seminar. Contact: Alice Yamada, 4-5662, or Nancy Wrigley, 3-6287.

Friday  
24

### INSTITUTE FOR GEOPHYSICS & PLANETARY PHYSICS

"Metals, Masses, and Feedback at High Redshift," by Alice Shapley, UC Berkeley. Noon,

Bldg. 319, room 205. Contact: Wil van Breugel, 2-7195, or Sharon Taberna, 3-6290.

Monday  
27

### LLNL/NAVAL POSTGRADUATE SCHOOL

Don Prosnitz of NAI will be presenting a lecture at the Naval Postgraduate School. 1

p.m., Mechanical Engineering Auditorium, NPS. Check the University Relations Program's Website at <http://npslectures.llnl.gov> for detailed information on the lectures. Contact: Harry Radousky, 2-4478, or Brenda Foster, 3-8257.

## TAUSCHER

Continued from page 1

and always on duty. This duty is everyone's responsibility and no one takes that responsibility more seriously than the people at Lawrence Livermore and Sandia national laboratories."

Completion of the inspection station was the final piece creating the East Avenue traffic corridor property-protection area between the Lawrence Livermore and Sandia National Laboratory.

"What we have achieved here is another example of the best in national security," Tauscher said.

Director Michael Anastasio noted: "This celebration serves as a reminder of the many people who are on the front lines day-to-day protecting us from terrorism, as well as the first responders to emergencies. I sincerely thank all the Lab employees who serve in these critical roles."

Anastasio added that it "took a lot of teamwork



JACQUELINE MCBRIDE/NEWSLINE

Canine officer Mike Farnham and his explosive sniffing dog demonstrate a vehicle inspection for the news media.

and dedication" by the community, the labs and partners across the Department of Energy/National Nuclear Security Administration complex "to make this East Avenue project happen."

Pat Smith, Sandia Site Operations director, con-

where she praised the labs for their role in helping to provide "the most robust national security on the planet" and detailed the complexities of conducting business in Washington during a presidential election year.

curred and provided some history of the effort to control access to East Avenue between the two labs. "From the start this was a collaborative project," she said. "We're very proud of this accomplishment."

Michael Connolly, NNSA site manager at LLNL for Safeguards and Security, reminded participants that "it is easy to forget the security you don't see," such as the work conducted at the inspection station. "But, the protective force that runs this facility day in and day out sets the standard for the complex," Connolly said.

After the ceremony, news reporters and guests were given a tour of the facility.

Following the DVIS dedication, Tauscher held an informal town hall meeting in the Bldg. 123 auditorium

## BKC

Continued from page 1

lence — the National Center for Food Protection and Defense at the University of Minnesota, the Center for Risk and Economic Analysis of Terrorism Events at the University of Southern California and the National Center for Foreign Animal and Zoonotic Disease Defense at Texas A&M University.

One of the center's functions is to prepare threat assessments about potential bioterrorism attacks for DHS.

"The BKC is a milestone for our national laboratories, DHS and the biodefense program," McQueary said during last Friday's dedication. "The BKC serves as a hub of biodefense expertise. It can protect us against and help us recover from a biological attack. This is something you should be proud to have in your community."

McQueary joined Wayne Shotts, acting director of the LLNL Homeland Security Organization; Bill Colston, BKC director; Maureen McCarthy, director of the Department of Homeland Security's Office of Research and Development; Mim John, Sandia vice president, and Lab Director Michael Anastasio in the BKC's official unveiling.

Initially, the center will provide assessments and respond to information requests from the DHS Operations Center, although other federal agencies may be able to use the center as a resource in the future.

"The mission is not just to respond to terrorist attacks but to anticipate, understand and prevent them," Colston said.

Randolph Hall, from the USC, Neville Clarke of Texas A&M and Frances Busta from the University of Minnesota also attended last week's ceremony representing the three DHS Centers of Excellence that will work with the BKC.

Prior to the dedication, McQueary delivered an all-hands address to Sandia and Laboratory employees commemorating September 11, 2001, and lauding the work of the national labs. He called the national labs "critical" to the effort to thwart



JACQUELINE MCBRIDE/NEWSLINE

Wayne Shotts, acting director of the Homeland Security Organization (center) and Bill Colston (right), Biodefense Knowledge Center director, presented Charles McQueary, undersecretary for the Department of Homeland Security's Science and Technology Directorate, with a special calling card.

current and future threats to national security.

"The work you're doing is helping make the country safe," McQueary said. "We don't say enough about the quality of the work conducted here."

Calling September 11 "one of the darkest days in our nation's history," McQueary said the events of that day demonstrate the need for every American to "play a vital role in national security."

"Every American citizen represents a sensor communication device," he said, noting that September has been designated national preparedness month. "American ingenuity and innovation are being harnessed in the war against terrorism."

The national laboratories have led the way in developing innovative technologies to protect the country, he said, citing BioWatch as an example of a biosensor system now used nationwide. "This technology was not in place 18 months ago and the second generation is now in the pipeline."

The basic technology at the heart of BioWatch was developed by scientists at Livermore and Los

Alamos and adapted for use in the Environmental Protection Agency air monitoring systems. BioWatch is now used in about 30 cities around the country.

While the DHS has made great strides in assembling the expertise needed to protect the nation, he said, "We're missing a system architecture. What we have is a collection of things that have been built up over time." However, McQueary said establishing systems architecture will be a "major thrust" which DHS will be "implementing through the labs and other vehicles."

"That's fundamental to our being able to identify the kind of scientific investments we need to make in the future," he said.

"We haven't used the labs and their capabilities as effectively as we should," McQueary said, attributing this to the fact the DHS is a "start up" organization. "We need to take greater advantage of the skills and things you do here."

He said improving sensor systems, such as BioWatch, to be able to do *in-situ* analysis and deliver the information to an emergency response network is an example of an area for further investment. Currently, samples collected by BioWatch are retrieved twice a day and taken to a lab for analysis.

"In each of the areas — chemical, biological, radiological and nuclear — we need breakthroughs in sensor technology," he said. "And who would be better equipped than the people here at these labs to do this work."

McQueary said it is vital to continue investing in technologies that protect the homeland, such as building on the capabilities of the National Atmospheric Release Advisory Center (NARAC) and traveler identification technologies.

"The nation is far better prepared to respond to an act of terrorism than three years ago," he said, although "there's still a lot to be done."

"The world has changed irreversibly. The national labs are critical to protecting the nation," McQueary said. "You are and will continue to be our capability."



# CLASSIFIED ADS

See complete classified ad listings at  
<https://www.ais.llnl.gov/newsline/ads/>

## AUTOMOBILES

1992 - HONDA ACCORD EX 2-DR COUPE, 90k miles \$3500/BO 925-373-6814

1996 - Dodge Grand Caravan ES, 3.8L V6, new transmission & radiator, reconditioned air cond, 180k, \$6,500 209-830-8300

1993 - Red Honda Del Sol, clean, 97.5K miles, well maintained. spoiler, 125hp, hard top stores trunk, 30-36MPG/EPA. Good for 100-150K miles more. \$6,495. 925-785-4680

1988 - Acura Legend 4 dr. white sedan w/144800 mi; strong 2.7L V6 engine; new tires, oil & filter, brakes; good for 1st time and experienced owners! 925-803-1316

1971 - Camaro Rs 350. Classic. Great Restoration Car. Original Motor Needs Work. Body Is Straight 209-629-4860

2003 - PT Cruiser, Touring Edition, blue, 30K miles, kelly blue \$13,400. asking \$12,800 OBO. 209-239-2639

1993 - Toyota 4-runner V6 automatic. High miles/hwy. Needs engine work. \$3,000 925-980-0923

1992 - Lexus LS 400, 142k mi, good cond, \$6500/BO. 209-982-0712

1994 - BMW 740i; 103K miles; Very good cond.! White ext.; Grey leather int.; 6-CD Changer; Sunroof; Auto everything! Asking \$8500. 925-371-1251

1998 - Mercedes Benz ML320 awd, power everything, dual heated seats/mirrors, 6cd changer, sunroof, tow package, 161k miles, runs/rides perfect 11,950 obo. 925-443-2856

1994 - Ford Taurus Sho Sedan 4D, V6, fully loaded, leather seats, 150K miles, only \$1,500.00. 925-321-2753

2001 - Volkswagen Golf GLS Turbo Hatchback 4D 2001, mileage 72,000, a/c, moon roof. Excellent condition. Ask \$10,500 OBO. Call 510-295-9745 or 510-558-0955

## AUTOMOBILE ACCESSORIES

Replacement grill for Chevy Suburban (1994-1999) or Truck. Exact duplicate of original. Black finish or repaint. \$95.00 209-482-9011

Truck bed for sale. 73-82 Chevy short-fleetside. \$150.00 925-525-4533

## BICYCLES

California Chariot Skooch 3 wheel double platform scooter, \$20, 925-449-4676

## BOATS

8 foot Livingston dingy with daggerboard slot in case you want to add a sail. Seaworthy, in fair condition. \$299 OBO. 925-684-3709

## CAMERAS

Sharp VL-AH50U Viewcam AE Hi-8 Analog Camcorder, 3 inch Color LCD, Zoom 16X - 400X, Originally \$400 Sell \$200, New Condition. 925-829-9443

## ELECTRONIC EQUIPMENT

Suzuki Sony 20inch TV with remote \$150, Onkyo hi-end turntable, great condition with cartridge \$100 415-543-3643

Phillips-Magnavox 19 inch. color t.v., good condition, about 6 years old. \$50. 209-823-6394

Logitech QuickCam Messenger video camera/webcam. Never used, brand new. \$35 (\$15 below retail). 925-424-5640 or 925-803-1316

## GIVEAWAY

1986 - Free.1986 Dodge Caravan, good car, needs camshaft gear. 925-373-9622

Free moving boxes, Sml, Med, Lrg.take all, Will bring to Lab.925-548-8574

Dryer works but only using cold air and needs new lint liner, otherwise in good shape. You haul. 925-455-5736

1971 Pontiac Firebird body and engine, no front clip or transmission 209-836-5784

Upright Freezer, about 20 years old?, still works good. U-haul 925-443-1715

Free Base Rock. 1.5 Cu Yards. Great under walkways or hot tubs. You pickup. 925-846-2903

## HOUSEHOLD

Must sell Dinning set - 4 Breuner chairs, like new with expandable modern dinning table. All for \$80 415-543-3643

Excellent 6 piece bedroom set \$575.00 headboard,footboard,2 night stand,triple dresser with mirror 209-931-9212

5-Pce Bedrm Set. Queen Size Bed With 2 Night Stands,Dresser, And Dresser W/Mirror. \$300 Orbo. 510-219-0500 209-834-8126

Bread Machine- Regal, Super Rapid (Like new) upgraded to top of the line programmable model. \$50. 925-447-8415

King size Head Board with Bed Frame \$50, Oak Dinning Table with four chairs \$150, glass top Breakfast Table with two chairs \$70, Computer Hatch \$30 925-837-4331

Oak dining hutch, med. finish. Good condition but need to part with because of new hutch. Good buy at \$50. Can email pictures. 925-699-4763

Water Bed Mattress, King Size, waveless, made by Aqua Queen with heater system. Very Good shape. \$100 209-835-9469

Kitchen Table, White Legs, Wood Top, Expandable, 4 Chairs. One Year New. \$150. Chaise Lounge Provencal Blue, Flowers, \$200. 925-337-3018

Antique end tables, mahogany, in good condition, both for \$175. 925-443-2114

GARAGE SALE, Saturday 9/25 only 8-4. Books, clothes, toys, furniture, etc. 1367 Daisy Ln. Livermore, cross street Bluebell Dr. 925-606-5315

Must sell - Whirlpool washer & dryer both \$250, Refrigerator \$125, Gas stove \$75, all excellent. Offers also taken 415-543-3643

Antique student seat attached to desk, iron/wood. \$95 925-552-0967

Color TV, 21 inch Proscan with remote and black shelf wood TV stand. All in excellent condition. Stand was over \$100. \$150 takes all. 925-648-0671

Childrens bedroom furniture; dresser, desk, and double bed w/mattress, box springs, head and foot board; good condition, \$300/set, 209-830-0728

Hot Wheels T-Wrecks playset, \$20. Lego Intellitrain, \$15. Assorted toys, games, puzzles, videos - preschool level, call for details. 925-454-0877

Antique mahogany Secretary with foldout writing desk. \$600. Two antique table lamp night stands. Made by craftsman (signed) in Indiana. \$75 for pair. 925-449-7888

Twin bed mattress set. Excellent condition. \$50 925-455-5736

Good Cond! wood computer desk and hutch-54Hx60Wx24D-\$75/BO U-haul. Wood entertainment with smoke glass 45Hx53Wx17D- fits 26W TV-\$75/BO U-haul. 925-754-8745

Wood Lathe, Craftsman, exc. condition, includes tools, \$250 925-449-5864

8 foot vinyl sliding glass door, double pane replacement type, removed for remodel. \$400/OBO 925-449-9294

Charcoal grey sofa & loveseat, great condition, burgundy sofa, reclines on both ends, burgundy recliner/rocker, futon. Best offer. 925-373-1331

## LOST & FOUND

LOST: Steel coffee mug, left in bicycle basket east of B481 around 1pm 9/10. Approx logo text: 1369 Coffee House, Cambridge, MA 510-251-2682

## MISCELLANEOUS

Top freezer refrigerator, Maytag Plus, white, 21 cu. ft., 69 in high, 35 in. wide, 33 in. deep, elevator shelf, factory-installed auto ice-maker, like new. \$500. 925-455-0998

Refrigerator, 23 c.f., Amana, exc. cond., side-by-side, ice and water maker, white, 5 years old. \$500. 925-371-1627

Large 2 section Little Tykes play structure \$50, Step 2 wagon \$10, 3 tier toy organizer \$20 925-449-4676

Figure Skates (ice) ladies 8 Rally Canadian Flyer \$50. Mens 10 Wards Hawthorn - \$40. Ladies MIURA SkiBoots 8.5 \$50. 925-447-8415

GARAGE SALE Saturday, 9/25 7:00 to 2:00. 7774 Cottonwood Lane Pleasanton. Tools, Furniture, Photography Equipment, Household items & more. 925-846-3706

Portable basketball hoop, adjustable height. \$50 925-447-4073

Black and Decker 7 1/4 inch circular saw. Works great. \$25. 925-648-0671

Barbie Heaven! Gently used Barbies & friends, lots of accessories- horses, stable, airplane, jeep, truck, castle, furniture, etc. \$50/BO 925-754-8745

10ea AGAPANTHUS in containers, \$15 take all. 925-447-6192

Craftsman radial arm saw, with stand on casters. Contractor grade. Good shape. \$100. In Tracy. 209-836-1691

Attention A's Fans - 1/2 price parking passes for A's games. \$6.50 per pass good through 10/3 (regular \$13) 925-449-5481

## MOTORCYCLES

1999 - H-D Ultra-Classic Electra Glide Lots of extras, ridden daily, needs cosmetic TLC, Book 15,800 Make reasonable offer. 925-634-2798

1980 - Honda Trail 110- runs good, very dependable. Low miles \$850 925-447-6301

## MUSIC INSTRUMENTS

Educational Percussion Xylophone CB-700 with case some wear but great tone. 2 octaves major, sharps and flats. No sticks. \$40.00 obo. 3-6124 925-240-7374

Suzuki violin, 1/4 size, Wolf violin headrest (1/2 size), all like new. Make offer 415-543-3643

Selmer student clarinet plus extras. Excellent condition. \$300 (less than renting for 2 years). 3-2362 Lisa 925-373-9319

Flute with case. Gemeinhardt M2. Just Cleaned \$100.00 925-454-8790

Kirchner upright piano. Needs to be refinished. Plays very well, great tone. Great piano. \$200.00 925-961-1957

Line-6 Duoverb combo amp 400\$ 209-869-2029

Suzuki violins with ugraded bow and bridge. Every size from 1/10 to 1/2. I am off to UCLA. Each comes with lesson from GHS concert mistress. \$80. 925-455-4046

## PETS & SUPPLIES

Rabbit cage 4 hole stacking with plastic pans. Very good shape, \$10. 925-455-5736

## RECREATION EQUIPMENT

78 Cessna 172N Superhawk 180 HP for sale. New engine. Totally redone. Call for details. Pictures available. \$84,950. 510-317-9879

1996 11 1/2 ft. Fully self-contained Weekender by Skyline. AC, inside/outside shower, micro, very good condition. \$7500 OBO, contact Jim 209-833-7604

Golf Clubs - Tommy Armour full set including metal woods. Graphite Shafts. \$100.00 925-820-0679

Camping Tent Sears 8x10 with Al poles and pegs- good condition. Can stand up inside. \$15. 925-447-8415

Nautulus Power System, with weights and roman bar, and pull down. No Bench. \$50 or BO. 925-828-2451

Women's small dive gear including wet suit, BC, two regulators, depth gauge, fins. \$60 or BO. 925-828-2451

## RIDESHARING

Express your commute, call 2-RIDE for more information or visit <http://www-r.llnl.gov/tsmp>.

Modesto - Modesto/Ripon Van Pool has an opening for a full time rider. 8:00 - 4:30 work schedule. 209-544-6411, ext. 2-2727

Walnut Creek - Looking for car-pool members. 4(10s) off Mondays. Hours 7:45am to 6:45pm but can be flexible. 925-381-0711, ext. 3-4048

Concord/Pleasant Hill/Walnut Creek - Seats available on Luxury vanpool. M-F, 7:30-4:30 925-947-6969, ext. 2-4206

PATTERSON - Don't commute alone. Join the Vanpool, save \$\$ & wear/tear on your vehicle, get R&R + commuter benefits. Ridership based fares. 209-892-2118, ext. 2-9502

## SERVICES

TUTORING in high school and college chemistry and math. 925-443-2095

All Surface Pressure Washing. Residential and Commercial, Free Estimates. 209-740-7456

LICENSED FAMILY CHILDCARE <1 mi from LLNL has openings for children ages 0-5. Limited school age slots also available. Great references. 925-245-9521

Martinez Painting Service Interior or Exterior Pressure washing baseboard installation wallpaper and acoustic removal free estimate 925-784-1197 924-294-8383

## SHARED HOUSING

Mountain House - 1800 sq ft new house with room to rent, available now, \$600 month util included 510-499-8947

Livermore - \$500 Larg/Med Masterbedroom With Shared Bath In 3 Bedroom Home With One Other Female. Female Pref. All Priviledges. Avail. Immdiately. 925-447-2466

Livermore - Single parent w/2 daughters has rm avail for rent. Mstr bdrm/ba w/all amenities. Warm and friendly environ. \$500/mo incl. util. Female pref. 925-606-0260

## TO TRADE

20in FLAT SCREEN COLOR TV. emerson (not LCD) brand new, less than 3 months old. quick sale price \$100. DVD player \$30. call dave 617-763-4843 617-763-4843

## TRUCKS & TRAILERS

1999 - Low mileage (35K) Toyota Tacoma Xtra Cab V6 4WD, 5-speed, exl cond \$15,000 925-449-3499

2001 - TOYOTA TACOMA 4 DOOR, 4wd,v6,pw,pl,auto trans,alarm,rear slider,hitch, bed extender,running boards, \$18000. very clean, 209-505-5041 price reduced 209-883-1847

1988 - Coleman Sun Valley tent trailer, \$1200 obo, call after 5:30pm. 209-835-2164

1995 - Jeep Cherokee Country

# Methane in earth's mantle may be energy source

By Anne M. Stark

NEWSLINE STAFF WRITER

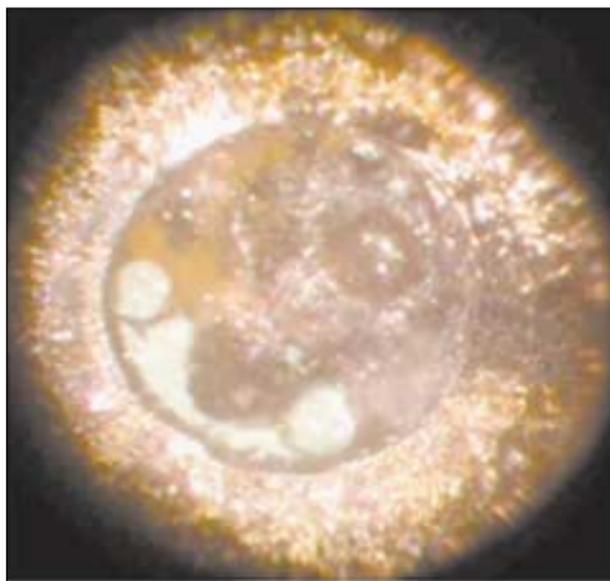
Untapped reserves of methane, the main component in natural gas, may be found deep in Earth's crust, according to a recently released report in the *Proceedings of the National Academy of Sciences (PNAS)*.

These reserves could be a virtually inexhaustible source of energy for future generations.

A team of researchers from the Laboratory, Carnegie Institution's Geophysical Laboratory, Harvard University, Argonne National Laboratory and Indiana University, South Bend, showed that methane forms under conditions that occur in Earth's upper mantle through a series of experiments and theoretical calculations.

Methane is the most plentiful hydrocarbon in Earth's crust and is a main component of natural gas. However, oil and gas wells are typically only drilled 5 to 10 kilometers beneath the surface. These depths correspond to pressures of a few thousand atmospheres. One atmosphere equates to 14.7 pounds per square inch of pressure.

Using a diamond anvil cell, the scientists squeezed materials common at Earth's surface — iron oxide (FeO), calcite (CaCO<sub>3</sub>) (the primary component of marble) and water to pressures ranging from 50,000 to 110,000 atmospheres and temperatures more than 2,500 degrees Fahrenheit — to create conditions similar to those found deep within Earth. Methane (CH<sub>4</sub>) formed by combining the carbon in calcite with the hydrogen in water. The reaction occurred over a range of temperatures and pressures. Methane production was



Methane bubbles (above) formed upon heating and compression of the sample to nearly 60,000 atmospheres of pressure. The LLNL team was able to show that bubbles were due to a supercritical phase separation into methane-rich and water-rich phases.

most favorable at 900 degrees Fahrenheit and 70,000 atmospheres of pressure.

The experiments show that a non-biological source of hydrocarbons may lie in Earth's mantle and is created from reactions between water and rock — not just from the decomposition of living organisms.

"The results demonstrate that methane readily forms by the reaction of marble with iron-rich minerals and water under conditions typical in Earth's upper mantle," said Laurence Fried, of the Chemistry and Materials Science Directorate. "This suggests that there may be untapped methane reserves well

below Earth's surface. Our calculations show that methane is thermodynamically stable under conditions typical of Earth's mantle, indicating that such reserves could potentially exist for millions of years."

The study is published in the Sept. 13-17 early, online edition of the *PNAS*.

The mantle is a dense, hot layer of semi-solid rock approximately 2,900 kilometers thick. The mantle, which contains more iron, magnesium and calcium than the crust, is hotter and denser because temperature and pressure inside Earth increase with depth. Because of the firestorm-like temperatures and crushing pressure in Earth's mantle, molecules behave very differently than they do on the surface.

"When we looked at the samples under these pressures and temperatures, they revealed optical changes indicative of methane formation," Fried said. "At temperatures above 2,200 degrees Fahrenheit, we found that the carbon in calcite formed carbon dioxide rather than methane. This implies that methane in the interior of Earth might exist at depths between 100 and 200 kilometers. This has broad implications for the hydrocarbon reserves of the planet and could indicate that methane is more prevalent in the mantle than previously thought. Due to the vast size of Earth's mantle, hydrocarbon reserves in the mantle could be much larger than reserves currently found in Earth's crust."

Authors of the *PNAS* study are: Henry P. Scott, Indiana University, South Bend; Russell Hemley and Ho-kwang Mao of the Carnegie Institution's Geophysical Laboratory; Dudley Herschbach of Harvard University; Fried, Michael Howard and Sorin Bastea of the Laboratory.

## CHROMOSOME

Continued from page 1

the HGP continues to produce the big hits.

Chromosome 5, the largest human chromosome finished to date, is the latest to have all its i's dotted and t's crossed. Its sequence analysis is featured in the Sept. 16 issue of the journal *Nature*.

Chromosome 5 is made up of 180.9 million genetic letters — the As, Ts, Gs, and Cs that compose the genetic alphabet. Those letters spell out the chromosome's 923 genes, including 66 genes that are known to be involved in human disease, including a cluster that codes for interleukins, molecules that are involved in immune signalling and maturation and are also implicated in asthma.

The spaces between the genes are as important as the genes themselves, said Eddy Rubin, the Joint Genome Institute's director. "In addition to genes that code for diseases such as obesity col-

orectal cancer, and attention deficit hyperactivity disorder, there are other important genetic motifs gleaned from vast stretches of noncoding sequence."

Rubin says that comparative studies conducted by Lawrence Berkeley Lab scientists have dug deep into the vast gene deserts, where it was thought there was little value. Under closer scrutiny, these gene-free stretches, conserved across many mammals, actually have powerful regulatory influence.

Previously considered "junk DNA," these seemingly barren regions have taken on greater prominence as researchers have learned that they can control the activity of distant genes. Some of the noncoding regions also have stayed remark-

ably consistent compared with those in mice or fish rather than accumulating mutations over the course of evolution.

"If you have such large human regions that stay conserved over vast evolutionary distances, it strongly supports the idea that they must contain something important," said Jeremy Schmutz, lead author on the *Nature* paper who led the sequence finishing effort as informatics group leader at the Stanford Human Genome Center.

JGI's Susan Lucas led the chromosome 5 sequencing effort and Joel Martin rode shotgun on the mapping and analysis phases.

And if Yogi is right, the Human Genome Project will continue to step up and make the clutch hit. (*A note to fans, the Oakland A's beat the Mets in the World Series that year.*)

Sport. 134K miles. Meticulously maintained; have records. Very clean, dependable vehicle. \$4,200 925-606-8763

1987 - Ford F150 4x4 stepside, engine runs, but needs rebuilding. Has a manual transmission \$3000.00 or best offer. 209-815-0526

1999 - Ford Ranger XLT Supercab, V6, 3.0 liter, 4WD, power steering, a/c, cd player, towing pkg., bed liner, alloy wheels. \$9,000. 925-443-4444

### VACATION RENTALS

Sooo cute beach cottage in Santa Cruz. 2 bedr, 2 bath, spa, fully equipped kitchen. Near harbor. Sleeps 7-8. 925-606-0480

Mountain cabin near Arnold. 4 bedr., 2 bath near creeks, hiking, lakes. Fully equipped kitchen, wood burning stove. Plan for winter fun. 925-606-0480

Maui, HI - Kahana Reef oceanfront 1BR/1BA condominium. Beautiful two-island view,

oceanside pool, and BBQs. LLNL rates for year-round reservations. 925-449-0761

Mendocino Coast - - Ocean View - large 4bd/4.5ba home, hot tub, private courtyard, deck, 3Q/1F/bunks, pets ok w/ dep., 2 night min., discount for LLNL employees 925-455-5942

SOUTH LAKE TAHOE - 3 Bedroom 2 Bath Chalet, comfortably furnished, all amenities, Escape to Tahoe!! RESERVE NOW! 209-599-4644

### WANTED

Got Yu-Gi-Oh or Magic the Gathering collectible cards you or your child do not want? Do not pitch em! We buy! 925-625-9159

Empty Shoeboxes for Operation Christmas Child which sends toys/goodies to children in poor and war torn areas around the world. 2-6775, 415-927-4415

Double Jogging Stroller, Gently Used. 209-236-1754

Old reel-to-reel tape recorder that plays at 1 and 7/8 IPS. Can

be three, five or seven inch reel size, AC or battery powered. 925-449-7888

Auto needed for daughter: 4dr, auto, reasonable, reliable. 209-786-2245

Will pay a reasonable price for Sprint PCS compatible cell phone. Looking for flip type phone, no other frills required. 510-471-6303

2 adults & 2 very well mannered Labs. Need House rental or house-sitting situation from November - February or March. 209-833-7020



## THE BACK PAGE

# Montana exercise tests nuclear accident response

By David Schwoegler

NEWSLINE STAFF WRITER

*Editor's note: David Schwoegler participated in the exercise, playing the role of a member of the media.*

Here's an opportunity to test your knowledge.

Malmstrom is:

a. A simulated boat ride at Disney's EPCOT Center,

b. A Nordic term for "bad storm."

c. A U.S. Air Force Intercontinental Ballistic Missile Base with missile fields larger than the state of West Virginia.

d. All of the above.

e. None of the above.

If you chose "c," you're right.

Located in northern Montana, five miles east of Great Falls, Malmstrom AFB is the home of the 341st Space Wing, and houses the world's most powerful, combat-ready ICBM force.

This week the base also served as the host of Diligent Warrior 2004, a "broken arrow" scenario, or full-scale nuclear-weapon accident-response exercise. It was directed by the Office of the Secretary of Defense, and sponsored by Department of Defense's Defense Threat Reduction Agency.



Attempting to reach the scene of a simulated nuclear weapon accident at Malmstrom Air Force Base in northern Montana, David Schwoegler of Lab Public Affairs is stopped by Air Force military police. The activities were all part of Diligent Warrior '04, a broken arrow exercise sponsored by DoD's Defense Threat Reduction Agency.

In the exercise, an Air Force payload transporter carrying a Minuteman III missile warhead was struck by a commercial tanker-truck loaded with 550-gallons of automotive fuel. The accident supposedly occurred on a Montana public highway.

This scenario was appropriate because missile maintenance requires that transport convoys travel to and from the 23,500 square-mile mis-

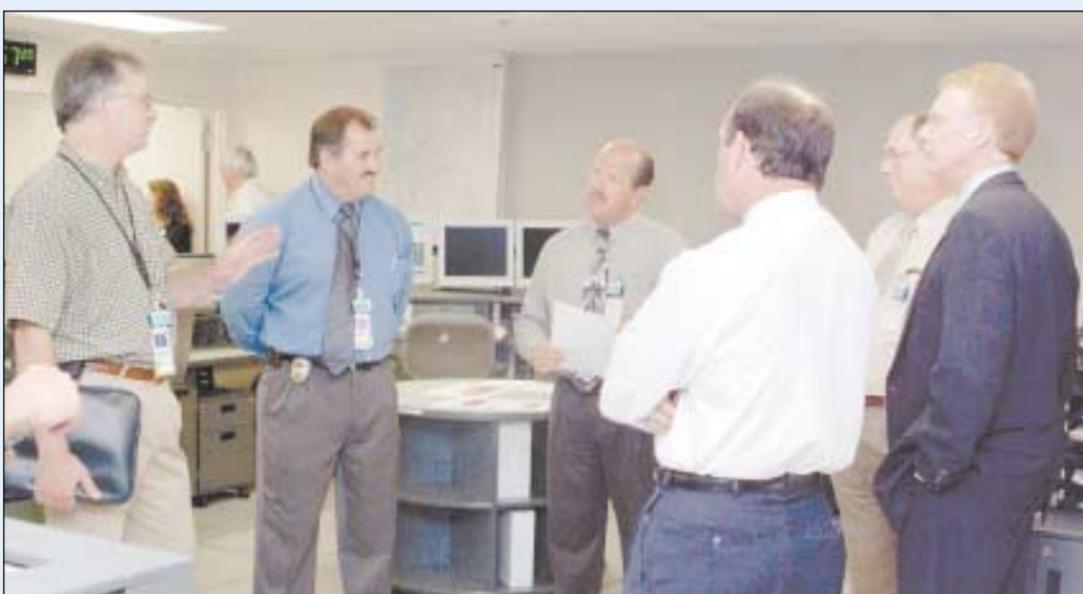
sile field regularly, on public highways, in all kinds of weather. Some of the transports travel as far as 150 miles to reach a missile silo.

The purpose of the exercise was to validate plans and procedures to respond to actual nuclear weapon accidents, while improving cooperation and coordination between federal, state and local responders. The exercise was unclassified, but did include some classified information, as the field portion unfolded near the base runway.

Approximately 950 people participated in the three-day event that ran September 13-16, at a cost of approximately \$1-million. The federal teams included DTRA, the Federal Emergency Management Agency, the Department of Energy and its national labs, DoD, Air Force Space Command, the FBI, the Department of Transportation, the Environmental Protection Agency and several state and local organizations. Livermore participants included players from Emergency Response, National Atmospheric Release Advisory Capability and Public Affairs.

Historically, there have been 32 accidents involving U.S. nuclear weapons. The last involved a Titan II silo in Damascus, Ark., and occurred in September 1980. None have ever occurred at Malmstrom.

## Regional emergency planning



FRANK NUNEZ/TID

From left: Safety & Environmental Protection Associate Director Bill Bookless and Lab Fire Chief Randy Bradley visit with American Medical Response representatives and Alameda County Fire Chief William McCammon (far right) during last week's Open House for the Alameda County Regional Emergency Communications Center located at LLNL. The recently remodeled Center is a state-of-the-art communications and dispatch facility serving Alameda County Emergency Medical Services and Fire, Camp Parks, and the cities of Alameda, Fremont and Union City.



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